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ABSTRACT

A study was undertaken to validate earlier research on the affective meanings of college grades to students, and to extend the generalizability of the findings by studying a more representative group. One hundred six students in two sections of an introductory psychology course comprised the sample. The average student was a second-semester sophomore with a B average, and a broad range of majors was represented. Students were asked to predict a grade in four hypothetical situations as a preliminary step, and then were administered nine different forms of a survey. The survey asked for descriptions of the students' feelings about receiving a C grade in each of two situations involving specifically identified and described courses, both major courses and general education courses. Responses were made from supplied adjective pairs. The results generally supported previous research done with a more homogeneous group regarding sex and college major. They also show that there are at least four relatively independent dimensions to the psychological meaning of specific grades: (1) whether the grade is good or bad: (2) whether the grade seems a likely or unlikely description of the work done: (3) how complicated or simple it is to understand the grade: and (4) how important or unimportant the grade is to the student. These qualities seem to be conceptually related to certain student characteristics, and to this extent, it is concluded that grades should be considered educationally meaningful. Further research is suggested into means for teachers to assure congruence between the intended and psychologically effective meaning of the grades. (MSE)

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THE AFFECTIVE MEANINGS OF COLLEGE GRADES: CONFIRMATION OF A MULTIFACTOR MODEL

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THE AFFECTIVE MEANINGS OF COLLEGE GRADES: CONFIRMATION OF A MULTIFACTOR MODEL

The educational literature on grades and grading practices is a well documented history of controversy (Cureton, 1971). What should be graded? What is graded? What marking units or symbols should be used? What is the ideal grade distribution? Should grades be anchored to rankings within appropriate groups or levels of knowledge or skill mastery? Given this long and remarkable context of concern with grades and grading practices, it is surprising that so little attention has been given to the problem of grades as forms of communication. For example, Cureton (1971, p. 6) considers the meaning of grades to be little more than a sub-problem of the more general issue of finding the best marking units and is more concerned with the precision of grades as measurements than with other denotative or connotative aspects of their meaning. In fact, when Ebel (1974) summarized the 22 most frequent arguments against grades for the purpose of refuting them, he pointed out that five of these amounted to the assertion that grades are meaningless. In addition, among the other arguments were five which could be summarized by the claim that grades are educationally unimportant.

McKeachie (1976) raised the issue of grades as forms of cummunication in arguing for a traditional approach to grading. The rationale was that the traditional system exists as a part of a common background of information which makes miscommunication less likely. McKeachie assumes that a) a teacher giving a grade is usually communicating with more than one individual; b) what is communicated depends in part on the person reading the grade, and c) teachers cannot unilaterally control or change the meaning of a grade. This analysis suggests an important but unanswered question: What do specific grades mean to those who read them?

Eiszler and Stancato (1979) attempted to determine the connotative meaning of specific grades for a sample of college students. Using the work of Osgood (1957 and 1971) to provide a theoretical and operational definition for meaning, they asked students to rate how they would feel about getting a specific grade in a college level course. Twenty scales composed of polar adjective pairs were used in the ratings. A sample of 483 ratings of specific grades (equally distributed from A to E, including + and - categories) with each grade rated on each of the 20 adjective scales was factor analyzed to determine how many separate factors are needed to account for the affective response of students to college grades.

Four factors were identified and labelled: The first factor was clearly interpretable as an "evaluation" component of meaning and describes an internal student reaction to the question: Does this grade refer to something that is good for me or bad for me? A second factor, termed "realism", seemed to describe a response to the question: Does this grade seem likely or unlikely as a description of my performance or achievement? In a third factor, originally labelled "complexity", students seemed to be reacting to the question: How complicated or simple is it to understand this grade? Finally, a factor identified as "salience" seemed to involve a response to the question: How important or unimportant is this grade to me?

In spite of its consistency with the tradition of semantic differential research, Eiszler and Stancato considered their work exploratory because of the nature of the student sample (upper division teacher education students), the limited number of adjective pair samples, and the nature of factor analytic research.

The purpose of the current study was to validate the structure of affective meanings of college grades discovered in the earlier research and to extend the generalizability of the findings by studying a more representative

sample of college students.

Method

Sample

One hundred and six students (59 female, 47 male) in two sections of an introductory psychology class were subjects in the study. The modal number of credit hours attained by students (including the semester in which the study was conducted) was 30, indicating that the typical student was a second semester sophomore. According to their own reports, the students had a median grade-point-average of 2.9, or an approximate "B" grade average. When asked to indicate the fields of study of greatest interest to them, students mentioned disciplines and areas of study from every School in the University. Grouped into broad categories interests were distributed as follows: science-18, social science-17, humanities-8, business-19, other (including some majors restricted to teaching curricula)-35. Although 9 students were unable to indicate a field of study which interested them, of those who did identify such a field, 85% said that they were "likely" or "very likely" to elect to major in the area of interest. Students were asked to indicate an expected grade in four hypothetical situations: easy and difficult courses in the major area of interest and easy and difficult courses outside the area of interest. There was no variation in the average grade expected with respect to whether a course was offered in or out of the major field of interest. However, students, on the average, expected to get a "B" in difficult courses and an "A" in easy courses.

Instrument

The instrument developed for the study was a modification of the semantic differential technique used by Eiszler and Stancato (1979). Twenty adjective pairs used in the earlier study were selected for their high loadings on possibly relevant factors cited in previous research (Osgood, 1957; Nunnally, 1964).

Four factors were subsequently identified and labelled by Eiszler and Stancato: evaluation, realism, complexity, and salience. However, the realism and salience factors were represented by a total of only five adjective pairs. In the current study, thirty-five adjective pairs were used. Some of these were selected to provide for greater saturation on the realism and salience factors. Figure 1 shows that the adjective pairs selected for the current study and their hypothesized relationship to the identified factors.

Insert Figure 1

The 35 adjective pairs were randomly ordered for use in the survey of meaning instrument. Nine forms of the survey instrument were constructed for use in the study. Each form required the student to provide background information and asked the student to describe his or her feelings about receiving the grade of "C" in each of two situations involving specifically identified and described courses. Courses used were selected from the arts, sciences, social sciences and humanities and included those intended for "general education" purposes as well as those required on a major or minor.[1]

Data Collection

Students were surveyed during the final 10 minutes of a regularly scheduled class meeting. No credit was given for participating in the survey and students who did not wish to participate were excused from the class. Fourteen of 120 students chose not to participate or were absent on the day the survey was done. Each participating student was randomly assigned one of the nine alternate forms of the survey.

[1] A copy of the semantic differential instrument and descriptions of the specific courses used may be obtained from the first author.

Design and Data Analysis

To describe the factor structure of the affective meaning of grades, 211 sets of semantic differential ratings (two for each participating student but one who rated only the first situation) were submitted to factor analysis using the principle factoring with iteration method of the SPSS program (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975). A VARIMAX rotation of the principle factor matrix was used to determine the correlation of items with underlying factors and served as the basis for factor interpretation. The four hypothesized factors (See Figure 1) were used as a framework for interpretations of the rotated matrix.

Results and Discussion

The major question of the study concerned the issue: To what extent could the components of the affective meaning of grades discovered in prior research be replicated in an independent sample of college students more representative of the general college population?

Basic Affective Meaning Components of College Grades

Four factors were identified in the factor analysis of semantic differential ratings. Table 1 summarizes the results of the factor analysis by presenting the factor loadings of scales which correlated with factors at values greater than .40. Scales are arranged within the table to allow easy recognition of the factor to scale relationships. Twenty-six of the 35 scales correlated significantly with one or more of the four factors. These four factors accounted for 50% of the total variation in semantic differential ratings. The relative importance of the four rotated factors, based on the percent of variance accounted for by each is approximately 10: 3: 2: 1 respectively.

Insert Table 1

Comparisons of the factors identified in Table 1 with the hypothesized factor structure presented in Figure 2 reveals the following. Of the four factors identified in the current study, two are clearly interpretable as hypothesized factors and the other two factors are consistent with some clarification, with hypothesized dimensions. Factor 1 of the current study includes 9 of 10 hypothesized scales and is clearly an evaluation factor. Factor 3 in the current study appears to be a good representation of the "salience" factor in that it includes six of twelve hypothesized scales and none that were not hypothesized.

Although Factor 2 of current study appears interpretable as the hypothesized "realism" factor, some clarification is necessary. Four of six hypothesized scales are included in the factor; however, four additional scales originally hypothesized to be related to the "complexity" factor loaded significantly on it. The added scales are consistent, however, with the interpretation that this factor represents an internal response to the question: Is this grade real or unreal as a representation of my performance or achievement?

Since four scales originally hypothesized to define "complexity" correlated instead with the "realism" factor, a redefinition of this dimension was needed. The "complexity" factor was originally assumed to represent how understandable a grade is. In the current study, the three scales significantly correlated with this factor (complicated/simple; easy/difficult; and hard/soft) seem to reflect an ease or difficulty or effort dimension.

These results indicate that the meaning which students assign to specific grades received in college level courses is multidimensional. The dimensions can be characterized as a series of internally formulated and independently answered questions. When a student receives a particular grade, meaning is created as the student asks and answers the following questions.

1. Is this grade good or bad? Three theoretically distinguishable clusters of scales contribute to this dimension. First, it involves elements of being fulfilled, satisfied and rewarded, as opposed to feelings or being unfulfilled, unsatisfied, and punished. These scales seem to characterize the state of the individual at the end of some experience and suggest a goal-oriented or motivational quality. A second cluster of scales seem to refer to qualities of behavior or performance of the individual during some task, ie., successful, responsible, and wise as epposed to unsuccessful, irresponsible, and foolish. Finally, the evaluation component of a grade involves an element which reflects the external nature of grades, the fact that grades are judgments of others, i.e., is it fair or unfair?

2. How real or unreal is this grade as a characterization of me? This factor includes scales which describe a grade as probable, possible, real, predictable, understandable, clear, concrete, and like-me as opposed to improbably, impossible, unreal, unpredictable, mysterious, confusing abstract, and unlike-me.

3. How important is this grade? Scales which correlate with this factor contrast a sense of the grade as important, releveant, serious, crucial, personal and immediate as opposed to unimportant, irrelevant, frivolous, incidental, impersonal and ultimate.

4. How hard was it to earn this grade? The three scales which contribute to this quality of grade meaning have been identified above.

Conclusions

Overall there is sufficient consistency with the hypothesized model to conclude that the data of the current study support the earlier tentative conclusions about the componenets of the affective meaning of grades (Eiszler and Stancato, 1979). It should be noted that the level of agreement between the current study and the model based on prior research occurs despite two methodological

variations which might be expected to introduce disagreement. First, in the current study, ratings were reported for feelings about receiving a "C" grade in a variety of clearly defined courses. In the earlier research, ratings were reported which characterized feelings about receiving specific grades (A, A-, B+, B, etc.) for a unspecified "college level course." Second, the samples in the current and earlier research differ considerably. Subjects in the earlier study were more homogenous with respect to sex (female) and major area of study (teacher education) than those in the current investigation. Finally students in earlier studies were mainly seniors while those in the current study were typically sophomores.

The specific grades received by college students derive their affective meanings from at least four internal and somewhat independent proccesses. To understand these meaning creating processes, we can, by analogy, imagine a student assigned a particular grade asking himself or herself the four following questions:

1. How good or bad is this grade?
2. How like-me or unlike-me is this grade?
3. How important is this grade?
4. How difficult was it to get this grade?

As these questions are answered the student is deriving meaning along dimensions which have been labelled evaluation, realism, salience and effort.

One direction to pursue in attempting to make sense of the current study is to examine the question: how do the affective dimensions of grade meaning relate to the growing body of literature on achievement motivation? Achievement motivation has been defined as the desire to perform with adequacy and excellence on tasks which have specifiable standards of attainment (Atkinson, 1964). It is possible to distinguish between an intrinsic achievement motive which has its roots in the striving for competence

observed in young children (White, 1959) and an extrinsic achievement motive related to a different precursor, the need for attachment (Bowlby, 1969). Intrinsic achievement motivation is further characterized by self-adopted standards and self-regulated success, while, in its extrinsic form, the motive to achieve involves a striving for the approval of others, and by implication externally determined standards and other-regulated success (Rohwer, Rowher, and B-Howe, 1980). In this context, grades may be seen either intrinsic rewards, signals of having attained a standard of achievement which warrants the self-evaluation of success, or extrinsic rewards, the sought after approval of a significant other. The meanings attributed by students to receiving a 'C-grade' in the current study are consistent with this view.

The complexity of the evaluative factor is one example of such consistency. This factor includes scales which define the value of a grade in terms of feelings regarding 1) goal attainment, 2) the quality of performance leading up to goal attainment, and 3) the degree of equity or justice of the grade as an external judgement about performance. The fact that these theoretically distinguishable qualities were empirically interrelated suggest a global nature to the evaluative meaning of grades which calls into question the view that students who verbalize an interest in their grades are extrinsically motivated while students who seem unconcerned are intrinsically motivated. A grade seems to have intrinsic and extrinsic qualitities of meaning for all students.

The importance of the relative weight given the intrinsic versus the extrinsic quality of a grade is highlighted by attribution theory (Winer, 1974). According to this view, success and failure experiences have implications for continuing achievement motivation, primarily as a function of the perceived causes of success or failure are internal (effort expended or ability) or external (task difficulty or luck). According to this theory, successes and failures

which are internally attributed are more likely to lead to a shift in expectations for the future (either positive or negative) than comparable experiences which are attributed to external causes.

In the current study, two aspects of grade-meaning were identified which seem to have relevence to this theory: the second factor, realism and the fourth factor, effort-required. The realism factor of grade meaning appears to reflect the internal-external distinction in the general sense that admitted qualities of the self-concept are usually considered internal. The "effort required" dimension of grade meaning seems roughly comparable to the external attribution involving task difficulty. Thus the value of the grade as a motivator, in the sense that it influences a student's expectations for the future, would depend more on some combination of three grade meaning qualities (evaluation, realism, and effort-required) than the single dimension of evaluation by iteself.

Another context in which grade meanings can be considered is in relation the literature on self-concept and academic self-esteem. In summarizing this literature, Purkey (1980, 1970) has called attention to the guidance function of the self-concept. Experiences, including those leading up to and encompassing being graded in course, are filtered through, and mediated by, whatever self-concept the individual holds. The guidance function operates to maintain a quality of self-consistency. The second factor of grade meaning, realism, seems particularly releveant to this aspect of the self-concept since it reflects the degree to which student is willing to internalize the grade and see it as consistent with the self. This factor suggests that a student is able to 'disown' a specific grade, to deny that it is self-connected, and to ignore the consequences of the self-discrepant evaluation. It seems reasonable to label of this quality of grade meaning "ownership" and to hypothesize that the effect of specific grades on the self-concept of a college student is

mediated by, as well as reflected in, this quality.

In sum, the results of this study show that there are, at least, four relatively independent dimensions to the psychological meaning of specific grades. In discussing these qualities, an attempt has been made to show that grade meanings can be related conceptually to such important student characteristics as intrinsic and extrinsic achievement motivation, the causal attributions of success and failure, and academic self-concept. To the extent that such characteristics of the student are considered important to a full understanding of an educational experience, grades must be considered educationally meaningful. McKeachie's (1976) concerns about the meaning of a grade can be elaborated: Given the complexity of meanings which can be attributed to a grade by a student, what can a teacher do to assure a degree of congruence between the intended and the psychologically effective meaning of the grade?

Additional research is needed to identify what, if any, situational or contextual factors influence grade meanings. Factors under the control of the instructor such as the type of grading system employed, the degree of self-evaluation involved, the specificity and/or clarity of the grading criteria might be examined to determine if they influence the meanings of specific grades to students. The results of such research have potential usefulness, in a theoretical and practical sense.

Evaluation	Realism	Complexity	Salience
rewarding-punishing	like-me-unlike-me	confusing-clear	sooner-later
responsible-irresponsible	unreal-real	understandable-mysterious	incidental-crucial
positive-negative	impossible-possible	abstract-concrete	serious-frivolous
unsuccessful-successful	improbable-probable	hard-soft	important-unimportant
foolish-wise	false-genuine	predictable-unpredictable	immediate-long-term
unsatisfying-satisfying	likely-unlikely	complicated-simple	far-near
fulfilling-unfulfilling		easy-difficult	intentional-accidental
exciting-boring			impersonal-personal
fair-unfair			relevant-irrelevant
good-bad			needed-unneeded
			frequent-infrequent
			passive-active

Figure 1. Hypothesized factor structure for the affective meanings of college grades.

Table 1

Factor Loadings of Semantic Differential
Ratings of Feeling Associated With a "C" Grade

Scales by Factors	Factors 1	2	3	4
Evaluation Items				
(34) fulfilling/unfulfilling	79	-12	16	-11
(10) positive/negative	71	-23	-01	-11
(24) good/bad	69	-27	-05	-06
(27) unsatisfying/satisfying	-69	12	04	15
(1) rewarding/punishing	61	-16	-17	-09
(31) needed/unneeded	60	-29	16	-06
(8) responsible/irresponsible	55	-18	03	15
(14) unsuccessful/successful	-54	42	16	16
(33) fair/unfair	43	-33	24	-14
(17) foolish/wise	-42	40	01	03
Realism Items				
(22) improbable/probable	-21	71	-04	-01
(18) impossible/possible	-23	61	-05	18
(11) unreal/real	-31	54	-21	04
(13) predictable/unpredictable	34	-52	-04	-15
(3) understandable/mysterious	36	-50	01	-19
(2) confusing/clear	-44	47	02	24
(4) like-me/unlike-me	46	-43	04	-09
(5) abstract/concrete	-19	42	-26	18
Salience Items				
(20) important/unimportant	00	-12	85	01
(26) relevant/irrelevant	20	-19	72	-10
(19) serious/frivolous	-11	-04	64	24
(9) incidental/crucial	14	-13	-55	-06
(7) impersonal/personal	02	03	-50	19
(6) sooner/later	23	-10	40	-19
Effort Required Items				
(15) complicated/simple	-08	18	07	85
(25) easy/difficult	08	-08	05	-67
(12) hard/soft	-04	15	-02	58

Decimals have been omitted from all factor loadings.

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